Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A communication network comprising:

a host network;

a plurality of base stations;

at least a mobile host capable of establishing links to said base stations; and

a hierarchy-network of plural ~~routers~~ router-sets providing multiple-point routings between said base stations and said host network, ~~and said routers including~~ wherein at least one of said router-sets is a page-area managing router for managing at least a page area for recording said mobile host,

wherein each of said router-sets includes plural associated routers that provide the same communication route and have the same routing information, and a selected one of said associated routers in each of said router-sets provides said communication route, and if said selected one of said associated routers becomes inoperational, then another of said associated routers is selected to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network, and

wherein selection of one of said associated routers in each of said router-sets is made by a selected higher level router that manages said associated routers,

wherein said page-area managing router transfers packets to subordinate routers managed by said page-area managing router only when a quantity of the packets does not exceed a predetermined number in a predetermined time period, and wherein said page-area managing router does not transfer packets that are received in the predetermined time period in excess of the predetermined number, and

wherein said page-area managing router discards the packets that are received in the predetermined time period in excess of the predetermined number.

2. (canceled)

3. (previously presented) The communication network as claimed in claim 1, wherein said page-area managing router is capable of optionally setting said predetermined number.

4. (original) The communication network as claimed in claim 3, wherein said predetermined number is a natural number.

5. (original) The communication network as claimed in claim 1, wherein said page-area managing router is capable of optionally setting said predetermined time period.

6. (previously presented) The communication network as claimed in claim 1, wherein said page-area managing router transmits, through said host network to a caller, a packet-

transmission suppression request which requests said caller to widen a time interval between transmission of said packets.

7. (previously presented) The communication network as claimed in claim 1, wherein said page-area managing router transmits, through said host network to a caller, a packet-transmission suppression request which requests said caller to stop transmission of said packets until said predetermined time period has passed, and re-start said packet transmission thereafter.

8. (currently amended) A method of controlling a communication network that includes a host network; a plurality of base stations; at least a mobile host capable of establishing links to said base stations; and a hierarchy-network of plural ~~routers~~ router-sets providing multiple-point routings between said base stations and said host network, each of said router-sets further including plural associated routers that provide the same communication route and have the same routing information, wherein at least one of said ~~routers include~~ router-sets is a page-area managing router that performs the steps of:

managing at least a page area for recording said mobile host, and

transferring packets to subordinate routers managed by said page-area managing router only when a quantity of the packets does not exceed a predetermined number in a predetermined time period,

~~said page-area managing router~~ not transferring packets that are received in the predetermined time period in excess of the predetermined number, and

~~wherein said page-area managing router discards~~ discarding the packets that are received in the predetermined time period in excess of the predetermined number,

the method further comprising the steps of selecting one of said associated routers in each of the router-sets to provide said communication route, and if said selected one of said associated routers becomes inoperational, then selecting another of said associated routers to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network, wherein selection of one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

9. (canceled)

10. (previously presented) The method as claimed in claim 8, wherein said page-area managing router is capable of optionally setting said predetermined number.

11. (original) The method as claimed in claim 10, wherein said predetermined number is a natural number.

12. (original) The method as claimed in claim 8, wherein said page-area managing router is capable of optionally setting said predetermined time period.

13. (previously presented) The method as claimed in claim 8, wherein said page-area managing router transmits, through said host network to a caller, a packet-transmission suppression request which requests said caller to widen a time interval between transmission of said packets.

14. (previously presented) The method as claimed in claim 8, wherein said page-area managing router transmits, through said host network to a caller, a packet-transmission suppression request which requests said caller to stop transmission of said packets until said predetermined time period has passed, and re-start said packet transmission thereafter.

15-21. (canceled)

22. (previously presented) A communication network comprising:

a host network;

a plurality of base stations;

at least a mobile host capable of establishing links to said base stations; and

a hierarchy-network of plural router-sets providing multiple-point routings between said base stations and said host network,

wherein each of said router-sets further includes plural associated routers which provide the same communication route and which have the same routing information, and a normally selected one of said associated routers in each router set is operational

to provide said communication route, and if said normally selected one of said associated routers becomes inoperational, then another of said associated routers is selected to be operational to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network, and

wherein selection of one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

23-24. (canceled)

25. (previously presented) The communication network as claimed in claim 22, wherein the normally selected one of said associated routers in each router set sends said selected higher level router a message indicating that said normally selected one of said associated routers is operational, and if said selected higher level router has not received said message from said normally selected one of said associated routers in a predetermined time period, then said selected higher level router judges that said normally selected one of said associated routers has become inoperational, and said selected higher level router selects the another of said associated routers to provide the same communication route.

26. (original) The communication network as claimed in claim 22, wherein all of said associated routers update the same routing information themselves based on a position recording

message of said at least mobile host which has been transferred through a selected lower level router which is managed by selected one of said associated routers, and said selected one of said associated routers further transfers said position recording message to all of higher level associated routers which are capable of managing said associated routers.

27. (previously presented) A method of controlling a communication network that includes a host network; a plurality of base stations; at least a mobile host capable of establishing links to said base stations; and a hierarchy-network of plural router-sets providing multiple-point routings between said base stations and said host network, each of said router-sets further including plural associated routers which provide the same communication route and which have the same routing information,

wherein a normally selected one of said associated routers in each router set is operational to provide said communication route, and if said normally selected one of said associated routers becomes inoperational, then another of said associated routers is selected to be operational to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network, and

wherein selection of one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

28-29. (canceled)

30. (previously presented) The method as claimed in claim 27, wherein the normally selected one of said associated routers in each router set sends said selected higher level router a message indicating that said normally selected one of said associated routers is operational, and if said selected higher level router has not received said message from said normally selected one of said associated routers in a predetermined time period, then said selected higher level router judges that said normally selected one of said associated routers has become inoperational, and said selected higher level router selects the another of said associated routers to provide the same communication route.

31. (original) The communication network as claimed in claim 27, wherein all of said associated routers update the same routing information themselves based on a position recording message of said at least mobile host which has been transferred through a selected lower level router which is managed by selected one of said associated routers, and said selected one of said associated routers further transfers said position recording message to all of higher level associated routers which are capable of managing said associated routers.

32. (previously presented) A hierarchy-router-network of plural router-sets providing multiple-point routings between a plurality of base stations establishing links to at least a mobile host and a host network,

wherein each of said router-sets further includes plural associated routers which provide the same communication route and which have the same routing information, and a normally selected one of said associated routers in each router set is operational to provide said communication route, and if said normally selected one of said associated routers becomes inoperational, then another of said associated routers is selected to be operational to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network, and

wherein selection of one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

33-34. (canceled)

35. (previously presented) The hierarchy-router-network as claimed in claim 32, wherein the normally selected one of said associated routers in each router set sends said selected higher level router a message indicating that said normally selected one of said associated routers is operational, and if said selected higher level router has not received said message from said normally selected one of said associated routers in a predetermined time period, then said selected higher level router judges that said normally selected one of said associated routers has become inoperational, and said selected higher level router

selects the another of said associated routers to provide the same communication route.

36. (original) The hierarchy-router-network as claimed in claim 32, wherein all of said associated routers update the same routing information themselves based on a position recording message of said at least mobile host which has been transferred through a selected lower level router which is managed by selected one of said associated routers, and said selected one of said associated routers further transfers said position recording message to all of higher level associated routers which are capable of managing said associated routers.

37. (previously presented) A communication network comprising:

a host network;

a plurality of base stations;

at least a mobile host capable of establishing links to said base stations; and

a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein at least one of said routers is a multicast router that transfers a packet to not only a first base station that is currently linked to said mobile host but also transfers the packet to at least a second base station that is adjacent to said first base station and not currently linked to said mobile host.

38. (original) The communication network as claimed in claim 37, wherein said router selected as said multicast router is positioned at a branch point of both a currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

39. (original) The communication network as claimed in claim 38, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

40. (original) The communication network as claimed in claim 39, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

41. (original) The communication network as claimed in claim 37, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

42. (original) The communication network as claimed in claim 41, wherein said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

43. (original) The communication network as claimed in claim 37, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

44. (original) The communication network as claimed in claim 37, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

45. (original) The communication network as claimed in claim 44, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

46. (original) The communication network as claimed in claim 45, wherein after said mobile host entered into said adjacent radio area and established a new link to said second

base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

47. (original) The communication network as claimed in claim 44, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

48. (original) The communication network as claimed in claim 44, wherein said second base station queues said packet.

49. (original) The communication network as claimed in claim 48, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label

values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

50. (original) The communication network as claimed in claim 37, wherein said multicast router is a bicast router.

51. (previously presented) A communication network comprising:

a host network;

a plurality of base stations;

at least a mobile host capable of establishing links to said base stations; and

a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein said hierarchy-network of plural routers establishes not only a currently designated communication route between said host network and a first base station that is currently linked to said mobile host but also a currently undesignated adjacent communication route between said host network and a second base station that is adjacent to said first base station and not currently linked to said mobile host, and

wherein said hierarchy-network of plural routers transfers a packet not only through said currently designated communication route to said first base station but also transfers the packet through said currently undesignated adjacent communication route to said second base station.

52. (original) The communication network as claimed in claim 51, wherein a router positioned at a branch point of both said currently designated communication route and said currently undesignated adjacent communication route is selected to perform as a multicast router.

53. (original) The communication network as claimed in claim 52, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

54. (original) The communication network as claimed in claim 53, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

55. (original) The communication network as claimed in claim 52, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

56. (original) The communication network as claimed in claim 55, wherein said multicast router transfers said packet to

said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

57. (original) The communication network as claimed in claim 51, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

58. (original) The communication network as claimed in claim 52, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

59. (original) The communication network as claimed in claim 58, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

60. (original) The communication network as claimed in claim 59, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said

first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

61. (original) The communication network as claimed in claim 58, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

62. (original) The communication network as claimed in claim 58, wherein said second base station queues said packet.

63. (original) The communication network as claimed in claim 62, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label

value, and said second base station sends said selected at least one packet to said mobile host.

64. (original) The communication network as claimed in claim 52, wherein said multicast router is a bicast router.

65. (previously presented) A method of controlling a communication network that includes a host network; a plurality of base stations; at least a mobile host capable of establishing links to said base stations; and a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein at least one of said routers is a multicast router that transfers a packet to not only a first base station that is currently linked to said mobile host but also transfers the packet to at least a second base station that is adjacent to said first base station not currently linked to said mobile host.

66. (original) The method as claimed in claim 65, wherein said router selected as said multicast router is positioned at a branch point of both a currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

67. (original) The method as claimed in claim 66, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a

routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

68. (original) The method as claimed in claim 67, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

69. (original) The method as claimed in claim 65, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

70. (original) The method as claimed in claim 69, wherein said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

71. (original) The method as claimed in claim 65, wherein said second base station is selected to be a base station which

transmits a most intensive radio wave to said mobile host except for said first base station.

72. (original) The method as claimed in claim 65, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

73. (original) The method as claimed in claim 72, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

74. (original) The method as claimed in claim 73, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

75. (original) The method as claimed in claim 72, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is

identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

76. (original) The method as claimed in claim 72, wherein said second base station queues said packet.

77. (original) The method as claimed in claim 76, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

78. (original) The method as claimed in claim 65, wherein said multicast router is a bicast router.

79. (previously presented) A method of controlling a communication network that includes a host network; a plurality of base stations; at least a mobile host capable of establishing links to said base stations; and a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein said hierarchy-network of plural routers establishes not only a currently designated communication route

between said host network and a first base station that is currently linked to said mobile host but also a currently undesignated adjacent communication route between said host network and a second base station that is adjacent to said first base station and not currently linked to said mobile host, and

wherein said hierarchy-network of plural routers transfers a packet not only through said currently designated communication route to said first base station but also transfers the packet through said currently undesignated adjacent communication route to said second base station.

80. (original) The method as claimed in claim 79, wherein a router positioned at a branch point of both said currently designated communication route and said currently undesignated adjacent communication route is selected to perform as a multicast router.

81. (original) The method as claimed in claim 80, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

82. (original) The method as claimed in claim 81, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed

radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

83. (original) The method as claimed in claim 80, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

84. (original) The method as claimed in claim 83, wherein said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

85. (original) The method as claimed in claim 79, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

86. (original) The method as claimed in claim 80, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

87. (original) The method as claimed in claim 86, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

88. (original) The method as claimed in claim 87, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

89. (original) The method as claimed in claim 86, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

90. (original) The method as claimed in claim 86, wherein said second base station queues said packet.

91. (original) The method as claimed in claim 90, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

92. (original) The method as claimed in claim 80, wherein said multicast router is a bicast router.